

### **REMARKS/ARGUMENTS**

Applicant acknowledges receipt of the Final Office Action dated June 25, 2009, in which the Office Action: objected to claims 22 and 40 as duplicates of claims 14 and 37; rejected claims 1-4, 6, 8-16, 18-77 and 112 – 119 as a provisional, non-statutory, obviousness type double patenting over claims 11-46 of copending Application No. 12/114,088; rejected claims 1-4, 10-16, 18-20, 22-30, 32-33, 35, 37-40, 46, 49, 51-57, 61-69 and 72-77 under 35 U.S.C. §102 (b) as allegedly being anticipated by *Sarrazin* (U.S. Patent No. 5,356,851); rejected claims 1-4, 6, 12-13, 14-16, 18-20, 22-30, 32-33, 36, 37-44, 47, 50-57, and 61-70 under 35 U.S.C. §102 (b) as allegedly being anticipated by *Thomson* (U.S. Patent No. 5,817,896); rejected claims 58-60, 112-115, and 117-119 under 35 U.S.C. §102 (b)/ 35 U.S.C. §103(a) as being anticipated/obvious by *Sarrazin* (U.S. Patent No. 5,356,851); rejected claims 112-119 under 35 U.S.C. §102 (b)/ 35 U.S.C. §103(a) as being anticipated/obvious by *Thomson* (U.S. Patent No. 5,817,896); and rejected claims 8-9, 21, 31, 34, 45, 48, & 71 under 35 U.S.C. §103(a) as being obvious by *Sarrazin* and *Thomson*, further in view of *Dai* (U.S. Patent No. 6,822,127).

#### **Status of the Claims**

Claims 8-9, 21-22, 31, 34, 40, 45, and 48 are canceled.

Claims 1, 14, 23, 25, 37, 41, 51, 66, 112, and 115-116 are amended.

Claims 1-4, 6, 10-16, 18- 20, 23-30, 32-33, 35-39, 41-44, 45-44, 49-77, and 112-119 are currently pending. Claims 1, 14, 37, 51, 66, and 112 are independent claims from all other pending claims depend directly or indirectly.

#### **I. Double Patenting Rejections**

Currently pending claims 1-4, 6, 10-16, 18- 20, 23-30, 32-33, 35-39, 41-44, 45-44, 49-77, and 112-119 stand provisionally rejected under the judicially created doctrine of nonstatutory obviousness-type double patenting as being unpatentable over claims 11-46 of U.S. Patent Application No. 12/114,088. Claims 11-46 in U.S. Pat. App. No. 12/114,088 were canceled during the Response to Office Action dated , thereby mooted the provisional double patenting rejection.

## **II. Claims Rejections – 35 U.S.C. § 102(b)**

### *A. Claims 1-4, 10-16, 18-20, 22-30, 32-33, 35, 37-40, 46, 49, 51-57, 61-69, & 72-77*

The Examiner rejects claims 1-4, 10-16, 18-20, 22-30, 32-33, 35, 37-40, 46, 49, 51-57, 61-69, & 72-77 under 35 U.S.C. 102(b) as being anticipated by *Sarrazin et al.* (U.S. Patent No. 5,356,851), hereinafter *Sarrazin*. Applicant respectfully traverses this rejection. To anticipate a claim, a reference must *disclose every element* of the challenged claim and *enable* one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir. 1996) (emphasis added).

*Sarrazin* does not claim or disclose the limitation “wherein the Group VIIB metal comprises Mn” as in amended independent claims 1, 14, 37, 51, and 66. Support for the amendment may be found in paragraphs [0073], Example 7, Table 1, and throughout the specification. *Sarrazin* is not anticipating prior art because it does not disclose each and every element, inherently or expressly, and it does not enable one skilled in the art to make the invention without undue experimentation.

Further, the Examiner asserts that the claimed limitation — “wherein the catalyst is capable of selectively hydrogenating acetylene with a conversion Sc of at least about 95% and a selectivity to ethylene relative to ethane Ss of at least about 25 when the catalyst is employed in a steady-state liquid phase hydrogenation process” — is inherent in *Sarrazin*. Applicant respectfully disagrees; *Sarrazin* does not teach this limitation. The Examiner must provide rationale or evidence tending to show inherency. MPEP 2112 I.V. The fact that a certain characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). Inherency may not be established by probabilities or possibilities. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *Id.* It is well known and commonly acknowledged by those skilled in the art that the *catalytic arts are inherently unpredictable*

In addition, each and every limitation recited in claims 14, 37, 51, and 66 are also not present in *Sarrazin*. To anticipate a claim, a reference must *disclose every element* of the challenged claim and *enable* one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir. 1996) (emphasis

added). Claim 14 recites, “wherein said composition is characterized by sustained activity for selective hydrogenation of at least about 150 hours.” Claim 37 recites, “a once-through acetylene conversion  $S_c$  of at least about 95%; and a selectivity for ethylene relative to ethane  $S_s$  of at least about 40.” Claim 51 recites, “having a single-pass conversion  $S_c$  of at least 90% in liquid-phase hydrogenation of acetylene.” Claim 66 recites, “the supported catalyst having an ethylene selectivity relative to ethane  $S_s$  of at least 20 in liquid-phase hydrogenation of acetylene.” The Examiner makes no assertion that these limitations are present in the prior art. Furthermore, the following limitations are not found in *Sarrazin*:

- Claim 1 limitation: wherein the catalyst ... is capable of selectively hydrogenating acetylene with a conversion  $S_c$  of at least about 95% and a selectivity to ethylene relative to ethane  $S_s$  of at least about 25 when the catalyst is employed in a steady-state liquid phase hydrogenation process.
- Claim 13, 14, and 38 limitations: wherein said composition is characterized by sustained activity for selective hydrogenation of at least about 150 hours.
- Claim 37 limitation: a once-through acetylene conversion  $S_c$  of at least about 95%; and a selectivity for ethylene relative to ethane  $S_s$  of at least about 40
- Claim 51 limitation: having a single-pass conversion  $S_c$  of at least 90% in liquid-phase hydrogenation of acetylene.
- Claim 53 limitation: a selectivity for ethylene relative to ethane  $S_s$  of at least about 40
- Claim 66 limitation: the supported catalyst having an ethylene selectivity relative to ethane  $S_s$  of at least 20 in liquid-phase hydrogenation of acetylene.

Further, Applicants submit that these limitations are not disclosed in the prior art, and therefore do not anticipate the instant claims for at least the reasons cited above.

*B. Claims: 1-4,6,12-13,14-16, 18-20, 22-30, 32-33, 36, 37-44, 47, 50-57, & 61-70*

The Examiner rejects claims 1-4,6,12-13,14-16, 18-20, 22-30, 32-33, 36, 37-44, 47, 50-57, & 61-70 under 35 U.S.C. 102(b) as being anticipated by *Thomson*. (U.S. Patent No. 5,817,896), hereinafter *Thomson*. Applicant respectfully traverses this rejection. To anticipate a claim, a reference must *disclose every element* of the challenged claim and *enable* one skilled in

the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir.1996) (emphasis added).

*Thomson* does not claim or disclose the limitation “wherein the Group VIIB metal comprises Mn” as in amended independent claims 1, 14, 37, 51, and 66. Support for the amendment may be found in paragraphs [0073], Example 7, Table 1, and throughout the specification. *Thomson* is not anticipating prior art because it does not disclose each and every element, inherently or expressly, and it does not enable one skilled in the art to make the invention without undue experimentation.

*Thomson* does not recite the limitations recited in independent claim 1 of first introducing a Group VIII metal on the inorganic support as a “precursor” and then the second metal, wherein second metal could be Zn, disposed on the precursor. Claim 37 recites the same limitation. *Thomson* introduces Pd and Zn simultaneously. (*Thomson*, Col. 2, ln. 40-54). This limitation is not recited in the prior art, and therefore, *Thomson* does not anticipate claim 1 and 37. Further, *Thomson* is not designed to operate in a liquid-phase reaction vessel as in claims 1 and 51. The reaction temperatures disclosed in the Tables of *Thomson* illustrate that these reactions are taken place in the gaseous-phase. This liquid phase limitation is not recited in the prior art, and therefore, *Thomson* does not anticipate claim 1 and 37.

In addition, each and every limitation recited in claims 14, 37, 51, and 66 are also not present in *Thomson*. To anticipate a claim, a reference must *disclose every element* of the challenged claim and *enable* one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir.1996) (emphasis added). Claim 14 recites, “wherein said composition is characterized by sustained activity for selective hydrogenation of at least about 150 hours.” Claim 37 recites, “a once-through acetylene conversion  $S_c$  of at least about 95%; and a selectivity for ethylene relative to ethane  $S_s$  of at least about 40.” Claim 51 recites, “having a single-pass conversion  $S_c$  of at least 90% in liquid-phase hydrogenation of acetylene.” Claim 66 recites, “the supported catalyst having an ethylene selectivity relative to ethane  $S_s$  of at least 20 in liquid-phase hydrogenation of acetylene.” The Examiner makes no assertion that these limitations are present in the prior art. Furthermore, these limitation are not inherent in the prior art for the same reasons cited above. It is well

known and commonly acknowledged by those skilled in the art that the *catalytic arts are inherently unpredictable*. Therefore, the instant claims are not anticipated by *Thomson*.

The Examiner asserts that the claimed limitation "wherein the catalyst is capable of selectively hydrogenating acetylene with a conversion  $S_c$  of at least about 95% and a selectivity to ethylene relative to ethane  $S_s$  of at least about 25 when the catalyst is employed in a steady-state liquid phase hydrogenation process" is inherent in *Thomson*. Applicant respectfully points out that *Thomson* does not teach this limitation expressly, or inherently. The Examiner must provide rationale or evidence tending to show inherency. MPEP 2112 I.V. The fact that a certain characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534 (Fed. Cir. 1993). Inherency may not be established by probabilities or possibilities. *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *Id.* It is well known and commonly acknowledged by those skilled in the art that the *catalytic arts are inherently unpredictable*. Examiner's assertion that the above cited limitation is inherent is an assertion of a mere possibility of inherency which is insufficient per *Robertson* and *Rijckaert*.

Furthermore, Examiner makes no assertion that the following limitations are present in the prior art. The following limitations are not found in *Thompson*:

- Claim 1 limitation: wherein the catalyst ... is capable of selectively hydrogenating acetylene with a conversion  $S_c$  of at least about 95% and a selectivity to ethylene relative to ethane  $S_s$  of at least about 25 when the catalyst is employed in a steady-state liquid phase hydrogenation process.
- Claim 13, 14, and 38 limitations: wherein said composition is characterized by sustained activity for selective hydrogenation of at least about 150 hours.
- Claim 37 limitation: a once-through acetylene conversion  $S_c$  of at least about 95%; and a selectivity for ethylene relative to ethane  $S_s$  of at least about 40
- Claim 51 limitation: having a single-pass conversion  $S_c$  of at least 90% in liquid-phase hydrogenation of acetylene.
- Claim 53 limitation: a selectivity for ethylene relative to ethane  $S_s$  of at least about 40

- Claim 66 limitation: the supported catalyst having an ethylene selectivity relative to ethane S<sub>2</sub> of at least 20 in liquid-phase hydrogenation of acetylene.

Further, Applicants submit that these limitations are not disclosed in the prior art, and therefore do not anticipate the instant claims for at least the reasons cited above.

### **III. Rejection of Claims – 35 U.S.C. § 102(b)/103(a)**

#### *A. Claims 58-60, 112-115, & 117-119*

The Examiner rejects claims 58-60, 112-115, & 117-119 under 35 U.S.C. 102(b)/103(b) as being anticipated and/or obvious under *Sarrazin et al.* (U.S. Patent No. 5,356,851), hereinafter *Sarrazin*. Applicant respectfully traverses this rejection. To anticipate a claim, a reference must *disclose every element* of the challenged claim and *enable* one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir.1996) (emphasis added). *Sarrazin* does not anticipate the instant claims, for at least the reasons presented hereinabove. Further, *Sarrazin* does not disclose each and every element, inherently or expressly.

Specifically, *Sarrazin* does not claim or disclose the limitation “wherein the Group VIIB metal comprises Mn” as in amended independent claims 1, 14, 37, 51, and 66. Support for the amendment may be found in paragraphs [0073], Example 7, Table 1, and throughout the specification. *Sarrazin* is not anticipating prior art because it does not disclose each and every element, inherently or expressly, and it does not enable one skilled in the art to make the invention without undue experimentation.

#### *B. Claims, 112-119*

The Examiner rejects claims 112-119 under 35 U.S.C. 102(b)/103(b) as being anticipated and/or obvious under *Thomson*. (U.S. Patent No. 5,817,896), hereinafter *Thomson*. Applicant respectfully traverses this rejection. To anticipate a claim, a reference must *disclose every element* of the challenged claim and *enable* one skilled in the art to make the anticipating subject matter. *PPG Industries, Inc. v. Guardian Industries Corp.*, 75 F.3d 1558, 1566 (Fed. Cir.1996) (emphasis added). *Thomson* does not anticipate the instant claims, for at least the reasons presented hereinabove. Further, *Thomson* does not disclose each and every element, inherently

or expressly, as Thomson does not claim or disclose the limitation “wherein the Group VIIB metal comprises Mn” as in amended independent claims 1, 14, 37, 51, and 66.

### **III. Rejection of Claims – 35 U.S.C. § 103(a)**

*Claims 8-9, 21, 31, 34, 45, 48 & 71*

The Examiner rejects claims 8-9, 21, 31, 34, 45, 48 & 71 under 35 U.S.C. 103(a) as being obvious under the combination of *Sarrazin* and *Thomson* further in view of *Dai* (U.S. Patent No. 5,817,896), hereinafter *Dai*. The Examiner alleges it would have been *prima facie* obvious to incorporate manganese (Mn) into the catalyst of the above references “because it is known as useful catalytic metal” as disclosed in *Dai*. Applicant traverses.

The Examiner admits that the combination of *Sarrazin* and *Thomson* fails to disclose the instant catalyst formulation, comprising Mn. Further, as stated above, it is well known and commonly acknowledged by that the *catalytic arts are inherently unpredictable*. Specifically, MPEP §2143.02 provides that an Examiner must present a rationale that a person of ordinary skill in the art would have had a reasonable expectation of success in combining prior art references. In light of the aforementioned unpredictability inherent in the catalytic arts, the Examiner fails to articulate why a person of ordinary skill in the art would have had a reasonable expectation of success. As such, Applicant submits, a useful catalytic metal is not analogous to a predictable catalytic metal, and one of skill in the art would not have a reasonable expectation of success in including a manganese component into a functioning catalyst.

### **IV. Conclusion**

Applicants, request reconsideration of the amended claims, as set forth, and a timely Notice of Allowance issued for pending claims 1-4, 6, 10-16, 18- 20, 23-30, 32-33, 35-39, 41-44, 45-44, 49-77, and 112-119. To expedite the Allowance, claims 8-9, 21, 31, 34, 45, 48 & 71 are cancelled herein, and the limitation of these non-anticipated, non-obvious claims have been incorporated to independent claims 1, 14, 37, 51, 66, and 112 .

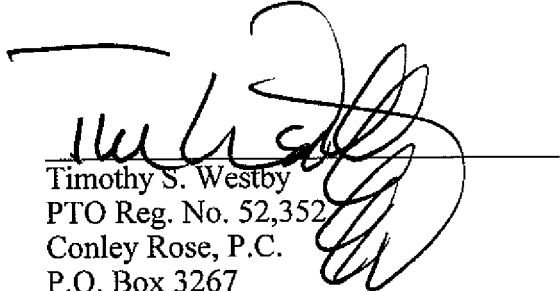
In the course of the foregoing discussions, Applicants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or

dismissed. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art that have yet to be raised, but which may be raised in the future.

If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore. The Commissioner is authorized to charge any additional fees incurred in this application to Deposit Account No. 03-2769 of Conley Rose, P.C., Houston, Texas.

If the Examiner has questions or comments regarding this communication or feels that a telephone conference would advance prosecution of this case, the Examiner is warmly solicited to contact the undersigned at the earliest convenience.

Respectfully submitted,



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